	SESSIONAL-I JAN 2023 Programme: BTech Branch: EE, CE PPT **Course Code: BTMAT112B** **Course Title: Mathematics-I**	Semester: I Time: 1 Hour Max Marks: 20

5 Marks

Q1. Find the value of a and b for which the equations

$$x + ay + z = 3$$
$$x + 2y + 2z = b$$
$$x + 5y + 3z = 9$$

are consistent. When will these equations have a unique solution?

5 Marks

Q2. Examine the convergence of the infinite series

$$\frac{2}{1} + \frac{2.5}{1.5} + \frac{2.5.8}{1.5.9} + \frac{2.5.8\,11}{1.5.9\,13} + \cdots$$

10 Marks

Q3. Verify Cayley-Hamilton theorem for $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ and hence compute

i. A^{-1}.

ii. eigenvalues and eigenvectors of A.

iii. modal matrix P.

iv. D such that $P^{-1}AP$.

CENTRAL UNIVERSITY OF HARYANA

SESSIONAL TEST I **English Language Skills (BT HUM 101B)** B.tech. (Civil & CSE) 1st year

MM 20 Time 1 hour

Attempt all questions.

1. (a) Differentiate between **Bight** and **Bite** by using them in sentences of your own. (2 marks)
(b) Give one-word substitution of: A decision that cannot be taken back. (1 mark)
(c) Use the phrasal verb in a sentence: fall through. (1 mark)
(d) Give synonym of alacrity (1 mark)
2. Based on your reading of the text "Mother Teresa", explain in about 100 words that Mother Teresa was a miraculous lady. (5 marks)
3. According to Lala Har Dayal, what knowledge Zoology gives us? (5 marks)
4. The following the advertisement was published in a newspaper: POSITIONS available for Construction site at Aerospace Park, Bengaluru. Project Manager (Graduate in B.Tech (Civil) Minimum Field Experience :- 10 Years. Write a JOB APPLICATION letter for the same. Your Job application letter should include a COVER letter with your RESUME. (5 marks)

Sessional-I

Central University of Haryana

Branch: Civil Engineering

Course Code: *BT EE 103A*

Course Title: *Basic Electrical Engineering*

Max Time: 1 Ho

Max Marks: 20

Instructions:

Question Number **one** *carries total 5 marks (Each sub Question carries one Marks).*

Question Numbers 2(two) to 4(four) carry 5 marks each .

Que. 1

A) State Kirchoff's Laws

B) Derive star to Delta transformation.

C) Derive the Maximum Power Transfer theorem.

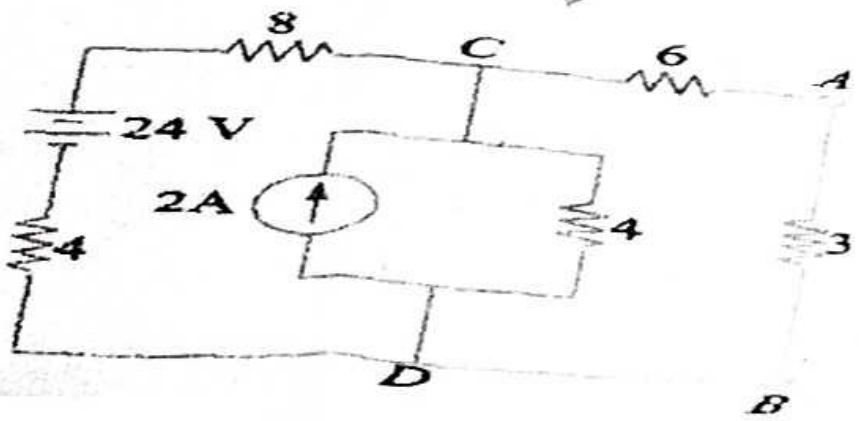
D) State the power triangle

E) What is resonance? State it.

Que.2 *With help of suitable example explain the superposition theorem.*

Que.3 *Derive the Time domain analysis of the first order series RC circuit.*

Que.4 *With the help of the Thevenin's theorem, calculate the current flowing through the 3-ohm resistor in the given network. All resistances are in ohms.*



Central University of Haryana
First Internal Examination January 2023
B. Tech (First Semester)

Course Code: BT PHY 113 A
Course Title: Mechanics

Max Time: 1 Hour
Max Marks: 20

Instructions: Each question carries five marks.

Q. No.1 Discuss the different coordinate system and its types.
Q. No.2 Show that Newtons second law of motion is invariant under all inertial frame of references.
Q. No.3 Obtain the velocity and acceleration expression in spherical polar coordinate system
Q. No.4 Illustrate the Newton's second law of motion in cylindrical coordinate system.